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3. The method according to claim 1, wherein the trailing signal has a resonant frequency and an ultrasonic velocity associated with the coating layer and said step (f) is carried out by using a combination of the resonant frequency and the velocity of the trailing signal.

4. An apparatus for measuring the thickness of a coating layer having a resonant frequency and being deposited on a substrate between the substrate and a fluid so as to create a fluid/coating interface and a coating/substrate interface, said apparatus comprising:

a transducer for directing a transmitted signal comprising a broad band of frequencies towards the coating layer;

a signal receiving means for receiving a backscattered signal from the fluid/coating interface and a trailing signal from the coating/substrate interface after a time delay relative to said backscattered signal; and

a signal processing means, operably associated with said signal receiving means, for establishing a signal processing window based on said time delay such that only the trailing signal is processed and for (i) measuring an amplitude of each frequency component of the trailing signal, (ii) determining the resonant frequency of the coating layer as the frequency component with the greatest amplitude, and (iii) calculating a thickness of the coating layer using the resonant frequency so determined.

5. The apparatus according to claim 4, wherein said signal receiving means is part of and located within said transducer.

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6. The apparatus according to claim 4, wherein said signal receiving means is separate from said transducer.

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